

What is claimed is:

1. An image sensing unit for a digital camera comprising

(a) a light-receiving surface; and

(b) a color filter mosaic,

5 wherein the light-receiving surface is divided into at least one chromatic sensing element and at least one achromatic sensing element.

2. The image sensing unit for a digital camera of claim 1, wherein the light-receiving surface has a plurality of pixel sensors arranged regularly on a two-
10 dimensional region.

3. The image sensing unit for a digital camera of claim 1, wherein the at least one achromatic sensing element contains pixel sensors.

15 4. The image sensing unit for a digital camera of claim 1, wherein the at least one chromatic sensing element contains pixel sensors.

5. The image sensing unit for a digital camera of claim 3, wherein the at least one achromatic sensing element has pixel sensors that encompass an area
20 larger than the area of pixel sensors in the at least one chromatic sensing element.

6. The image sensing unit for a digital camera of claim 1, further comprising a scanning electronic circuit that outputs an electric image signal of incident light in contact with pixel sensors that has undergone photoelectric
25 conversion.

7. The image sensing unit for a digital camera of claim 1, wherein the color filter mosaic is separated at a predetermined distance from the light-receiving surface in the direction of the incident light.

30 8. The image sensing unit for a digital camera of claim 1, wherein the chromatic sensing unit receives chromatic light entering through the color filter mosaic.

9. The image sensing unit for a digital camera of claim 1, wherein the achromatic sensing unit receives direct incident light that has not passed through the color filter mosaic.

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10. The image sensing unit for a digital camera of claim 1, wherein the achromatic sensing unit receives direct incident light that has passed through the color filter mosaic.

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11. The image sensing unit for a digital camera of claim 1, further comprising a scanning electronic circuit that outputs incident light in contact with pixel sensors as an electric image signal that has undergone analog-to-digital conversion.

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12. A digital camera comprising

(a) an imaging photography unit;

(b) a digital signal processor;

(c) a data storage unit;

(d) an automatic focusing shutter; and

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(e) an automatic focusing unit

wherein the imaging photography unit comprises a focusing lens, a focusing lens driving unit, and an image sensing unit comprising a light-receiving surface that is divided into a chromatic sensing element and an achromatic sensing element.

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13. The digital camera of claim 12, further comprising a recording medium interface for inserting a recording medium.

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14. The digital camera of claim 13, wherein the recording medium comprises a portable compact flash card, smart media, and memory stick.

15. The digital camera of claim 12, further comprising a display unit.

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16. The digital camera of claim 15, wherein the display unit is a color LCD monitor.

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~~15~~ The digital camera of claim 12, wherein the data storage unit comprises a temporary storage unit and a non-volatile storage unit.

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~~16~~ The digital camera of claim 12, wherein the image sensing unit comprises:

(a) a light-receiving surface having a plurality of pixel sensors arranged regularly on a two-dimensional region of a predetermined size;

(b) a scanning electronic circuit that outputs an electric image signal of incident light contacting a plurality of pixel sensors that has undergone photoelectric conversion; and

(c) a color filter mosaic separated at a predetermined distance from the light-receiving surface in the direction of the incident light.

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~~17~~ The digital camera of claim 12, wherein the light-receiving surface comprises a chromatic sensing unit for receiving chromatic light entering through the color filter mosaic and an achromatic sensing unit for receiving direct incident achromatic light that has not passed through the color filter mosaic.

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~~18~~ The digital camera of claim 12, wherein the automatic focusing unit receives a digital image signal from the image sensing means and performs automatic focusing in response to an automatic focusing indication signal.

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~~19~~ The digital camera of claim 12, wherein the automatic focusing unit comprises:

(a) a brightness comparator that compares the digital image signal received from the image sensing means with a predetermined reference brightness signal and outputs a comparison result in response to the automatic focusing indication signal;

(b) a region selector that receives the digital image signal and outputs a chromatic digital image signal in response to the automatic focusing indication

signal and selects either a chromatic or an achromatic image signal in response to the brightness comparison result; and

(c) a focus signal generator that analyzes the high frequency component of the digital image signal output from the region selector, calculates a focal value, and outputs a focus signal at the time the focal value is a maximum in response to the automatic focus indication signal.

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20. The digital camera of claim 12 wherein the focusing lens driving unit moves a focusing lens within a predetermined range in response to an automatic focusing indication signal and fixes the location of the focusing lens in response to a focus signal.

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21. The digital camera of claim 12, wherein in the chromatic sensing element and achromatic sensing element are controlled by separate control signals and output only photoelectrically converted chromatic and achromatic image signals through separate paths, respectively.

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22. The digital camera of claim 12, wherein the light-receiving surface may be realized by a metal oxide semiconductor image sensor or a charged coupled device.

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23. A method for automatically focusing a digital camera, the method comprising the steps of:

(a) determining whether amount of light incident onto an image sensing unit is greater than a predetermined amount;

(b) if the amount of light incident onto the image sensing unit is greater than the predetermined amount, then performing automatic focusing using a signal from a chromatic sensing element; and

(c) if the amount of light incident onto the image sensing unit is less than the predetermined amount, then performing automatic focusing using a signal from an achromatic sensing element.